Remarks

Claims 1-10 are pending in the application. Claims 1-10 are rejected. The Claims are not amended. All rejections are respectfully traversed. Please note again, the claims have not been amended.

Claims 1- 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. (US 7,096,034 B2) in view of Chaddha (US 6,233,017 B1).

The present application distinguishes Zhang at paragraph [018], which is now U.S. Patent 7,096,034.

[018] U.S. Patent Application 20030064744 by Zhang et al. April 3, 2003 describes a method for reducing power consumption in mobile devices. Their power allocation method maximizes a total effective data rate in the channel.

Zhang is only interested in minimizing power while maximizing the effective transmission rate, see Abstract:

"The base station sets a target signal quality value for each mobile station, and the target values are determined by the base station such that the total effective data rate from all the mobile devices is maximized under constraints of the total received power and the error protection level requirements for the mobile devices."

The invention *measures a condition of the channel*. The Examiner cites column 4:

"Furthermore, both transmission power and computational power control should be adapted to the time-varying wireless channel conditions, which may cause fluctuations of the received signal properties, such as signal amplitude or signal power." This sentence says that power *should* be adapted to varying channel conditions. There is nothing at all about

actually *measuring* the channel condition. Then, Zhang goes on to say: "On the other hand, rate control maintains a constant received E_b/N_0 (or bit-error-rate (BER)) by adapting the data rate relative to the channel fading such that the mobile device transmits at high rates under favorable channel conditions and responding to channel degradation by reducing data rates, while the transmit power is held fixed." This sentence says that the data rate *should* be adapted to channel fading. There is nothing about measuring the channel condition. Figure 5 shows that Zhang adjusts power.

The Examiner admits that Zhang does not measure the rate and distortion characteristics of the multimedia. The Examiner cites the Chadda Abstract. The Abstract only discusses data characteristics. Nothing is measured in the Abstract.

Claimed is providing a set of error resilient source encoding procedures. At column 1, Zhang describes: "On the other hand, joint source-channel coding is performed by individual mobile devices by introducing redundancy through channel coding to combat transmission errors. Most existing JSCC schemes are designed to minimize data distortion. To date, the techniques of power control and JSCC have been studied separately, and few of them are concerned with the power consumption of mobile devices." This says channel coding is done by mobile devices, and distinguishes existing channel coding schemes. At the top of column 5, Zhang distinguishes his work *"Different from most JSCC* schemes designed to minimize the distortion, the *scheme of the invention minimize the total power by allocating the total rate* between source and channel." This does not describe an error-resilient source encoder.

In any case, Zhang only has a *single* source encoder 348, "source encoder 348 encodes the input signals to form source-coded data." "The source encoder 348 is responsible for encoding input source signals, such as, images, video/audio signals, and text signals, to

appropriately *remove a portion of redundant signals* (please read as compression) in source signals, and generating an output source encoded signal."

Zhang only adjusts the parameters of his one encoder. He does not select from a set of encoders as claimed.

Claimed is providing *a set of transmitter power levels*. At column 8, Zhang describes: "The difference between the current transmission power level and the estimated transmission power level of the minimization solution is the amount of adjustment for the transmission power. The mobile device then adjusts its transmission power as well as its source coding and channel coding, so as to minimize its total power consumption (step 540)." That, Zhang determines a difference between current and estimated power, and then minimizes power consumption. There is no providing of a set of power levels as claimed. It is clear from column 7 of Zhang that there is **only one** channel encoder.

Claimed is providing an objective function and a constraint based on energy and distortion. The Examiner again cites the only the abstract.

Abstract
A power control scheme for a wireless network communication system that includes a base station and multiple wireless mobile device dynamically adjusts transmission power of a mobile device in conjunction with adjusting its bit allocation in source coding and channel coding to minimize its total power consumption while maximizing the system capacity in terms of the total effective transmission rates received by the base station.

There is not objective function described in this sentence.

The base station sets a target signal quality value for each mobile station, and the target values are determined by the base station such that the total effective data rate from all the mobile devices is maximized under constraints of the total received power and the error protection level requirements for the mobile devices.

There is not objective function described in this sentence.

The base station periodically measures a signal quality value, such as a signal-to-interference ratio (SIR), from transmissions received by the base from each mobile device, compares it with the measured signal quality value for that mobile device, and sends a control signal instructing the mobile device to increase or decrease its transmission power based on the result of the comparison.

There is not objective function described in this sentence.

When the mobile device receives the control signal, it determines an amount of adjustment to its transmission power by performing a minimum calculation under constraints on the total data distortion and the maximum transmission rate to adjust the parameters for source coding, channel coding, and transmission under the constraints to result in a redistribution of power between the components that provides the minimized total power consumption.

There is not objective function described in this sentence.

With all due respect, the Abstract of Zhang, not anywhere else in Zhang, does describe an objective function.

Then, claimed is selecting jointly a particular error resilient source encoding procedure, a particular channel encoding procedure, and a particular power level based on the condition of the channel and the rate and distortion characteristics, while minimizing an objective function and satisfying a constraint. The Examiner

merely cites column 1, but does not provide any reasoning where the claimed limitations can be found. This is an impermissible omnibus rejection.

Power control and joint source-channel coding (JSCC) are two effective approaches for supporting quality-of-service requirements for wireless communications, especially when the communications involve the transmission of multimedia data.

There is no selecting jointly a particular error resilient source encoding procedure, a particular channel encoding procedure, and a particular power level based on the condition of the channel and the rate and distortion characteristics, while minimizing an objective function and satisfying a constraint in this sentence.

Power control is performed from a group point of view by controlling transmission power and spreading gain (transmission rate) of the wireless devices in the group.

There is no selecting jointly a particular error resilient source encoding procedure, a particular channel encoding procedure, and a particular power level based on the condition of the channel and the rate and distortion characteristics, while minimizing an objective function and satisfying a constraint in this sentence.

Most power control schemes are designed to achieve goals such as guaranteeing the low bound of signal-to-interference ratio (SIR), balancing received power levels, or maximizing cell capacities.

There is no selecting jointly a particular error resilient source encoding procedure, a particular channel encoding procedure, and a particular power level based on the condition of the channel and the rate and distortion characteristics, while minimizing an objective function and satisfying a constraint in this sentence.

On the other hand, joint source-channel coding is performed by individual mobile devices by introducing redundancy through channel coding to combat transmission errors. Most existing JSCC schemes are designed to minimize data distortion.

There is no selecting jointly a particular error resilient source encoding procedure, a particular channel encoding procedure, and a particular power level based on the condition of the channel and the rate and distortion characteristics, while minimizing an objective function and satisfying a constraint in this sentence.

To date, the techniques of power control and JSCC have been studied separately, and few of them are concerned with the power consumption of mobile devices.

Thus, Zhang has none of the claimed elements, and Zhang in combination with Chadda cannot make what is claimed obvious.

With respect to claim 2, claimed is selecting jointly a particular error resilient source encoding procedure, a particular channel encoding procedure, and a particular power level based on the condition of the channel and the rate and distortion characteristics, while minimizing an objective function and satisfying a constraint, and in which the objective function minimizes energy while the constraint is a distortion.

This is the entire reason for rejection claim 2:

> For claim 2 **Zhang** teaches a method, in which the objective function minimizes energy while the constraint is a distortion (see *Fig. 5 "530"*).

The Examiner merely recites the claim, and then points to figure 5.

Finding ΔP_i that Minimizes the Total Power Consumption Subject to the Total Transmission and Distortion Constrains

Zhang minimizes power subject to total transmission and distortion. Figure 5 does not show selecting *jointly*

a particular error resilient source encoding procedure,

a particular channel encoding procedure,

a particular power level based on the condition of the channel and the rate and distortion characteristics, as claimed. Zhang cannot make claim 2 obvious.

With respect to claim 3, claimed is and objective function that minimizes distortion while the constraint is energy. At column 2, Zhang state: " When the mobile device receives the control signal, it determines an amount of adjustment to its transmission power by performing a minimum calculation under constraints on the total data distortion and the maximum transmission rate to adjust the parameters for source coding, channel coding, and transmission under the constraints to result in a redistribution of power between the components that provides the minimized total power consumption."

The Examiner states, without any reasoning:

> For claim 3 **Zhang** teaches a method, in which the objective function minimizes distortion while the constraint is energy (see *column 2 lines 19-21*).

With all due respect, this is wrong.

the base station, it determines an amount of adjustment to
20 the transmission power by performing a minimization cal-
culation under constraints on the total data distortion and the

Clearly Zhang adjusts the power by minimizing the *power* under constraints on the
total distortion. Recall, the whole premise of Zhang is to minimize power, see title:
**System and method for reducing power consumption for wireless
communications by mobile devices.** The invention does the opposite, it
minimizes distortion under an energy constraint. Zhang cannot make what is
claimed obvious.

With respect to claim 4, claimed is applying the particular error resilient source
encoding procedure to the multimedia to produce a bit stream; applying the
particular channel encoding procedure to the bitstream to produce an output signal;
and applying the particular power level to the output signal for transmission. The
Examiner merely recites the claim and then references three columns in Zhang.
Not reasoning is provided.

Column 1 of Zhang describes "On the other hand, joint source-channel coding is
performed by individual mobile devices by introducing redundancy through
channel coding to combat transmission errors." Column 6, only describes a source
encoder. As stated before, column 8 only describes a power difference.

With respect to claim 5, claimed is that the bitstream includes a plurality of layers,
and the *selecting is performed independently* for each layer. The Examiner points
again to the abstract of Chadda. No reasoning is provided. Chadda only describes
that the video can be a multi-layer video. This is not what is claimed. Claimed is

With respect to claim 6, claimed is measuring a channel bandwidth. The Examiner cites column 2. Note no reasoning is provided. With all due respect the Examiner again is wrong. Chadda describes: "The bandwidth required to transmit multimedia data over a network is a function of the characteristics of that data. With video, for example, the higher the resolution, the quality, and the frame rate, the higher the bandwidth required to transmit that video. Once the level of resolution, quality, and frame rate of video content is known, the bandwidth required to transmit that content can be calculated." It is clear from Chadda, that the bandwidth is calculated from resolution and frame rate. There is nothing in Chadda that would let one to believe that the actual bandwidth of the transmission channel is measured.

With respect to claims 7-8, claimed is JPEG 2000. The Examiner cites Chadda. Chadda was filed in June 30, 1997. JPEG 2000 is a wavelet-based image compression standard. It was created by the Joint Photographic Experts Group committee in the year 2000. Chadda could not have foreseen JPEG 2000.

With respect to claim 9, claimed that the objective function is minimized and the constraint is satisfied by analyzing an *energy-distortion curve*. The Examiner cites Chadda column 25, "We show PSNR curves for VQ, PVQ, VQ with quadtree, PVQ with quadtree on a block of residuals, and PVQ with quadtree with recursive prediction and encoding." Those of ordinary skill in the art would known that PSNR refers to the phrase *peak signal-to-noise ratio*, which is an engineering term for the ratio between the maximum possible power of a signal and the power of corrupting noise that affects the fidelity of its representation. Because many signals have a very wide dynamic range, PSNR is usually expressed in terms of the logarithmic decibel scale, see Wikipedia.

With respect to claim 10, see above.

For most of the rejections in the Office action, the Examiner recites the claim, and then cites to one or more paragraph, e.g.,

providing a set of error resilient source encoding procedures (see column 1 lines 42-49);

providing a set of channel encoding procedures(see column 1 lines 42-49);

providing a set of transmitter power levels (see column 8 lines 63-65);

providing an objective function and a constraint based on energy and distortion (see abstract); and

The Examiner does provide and reasoning. These are mere omnibus rejection, no reasoning is provided, just a curt (see xxx).

As is recognized in MPEP 707.07(d), "omnibus rejection of the claim ...is usually not informative and should therefore be avoided." MPEP 707.07(f) further mandates that "***where a major technical rejection is proper, it should be stated with a full development of the reasons*** rather than by a mere conclusion coupled with some stereotyped expression." "An omnibus rejection of the claim "on the references and for the reasons of record" is stereotyped and usually not informative and should therefore be avoided. Applicants believe that "see column xxx" is just a reference and for the reason of the record.

The rejections by the Examiner are a mere conclusion, without a full development of reasons. MPEP 706.07 further makes clear that "***the invention as disclosed and***

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claimed should be thoroughly searched in the first action and the references should be fully applied." In the present application, the rejection fails not only to provide a reasonable rational as to how, in the Examiner's view, the applied art can be construed to teach each and every feature in the rejected claims, but the rejection also fails to even consider explicitly claimed features of the invention as recited in the claims.

It is believed that this application is now in condition for allowance. A notice to this effect is respectfully requested. Should further questions arise concerning this application, the Examiner is invited to call Applicants' attorney at the number listed below. Please charge any shortage in fees due in connection with the filing of this paper to Deposit Account 50-0749.

Respectfully submitted,
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